25X1A

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CENTRAL INTELLIGENCE AGENCY REPORT NO [redacted]

INFORMATION REPORT

CD NO.

COUNTRY Yugoslavia

DATE DISTR. 12 Jan. 1951

SUBJECT The Gustanj Foundry and Rolling Mill

NO. OF PAGES 17

25X1A PLACE ACQUIRED [redacted]

NO. OF ENCLS. 1 Sketch (LISTED BELOW)

DATE OF IN[redacted]

25X1X

SUPPLEMENT TO REPORT NO SO-53/12

[redacted]

The entire area of the Gustanj Foundry and Rolling Mill is represented on the attached sketch, and the various buildings are indicated by numbers. The following is a legend and detailed explanation regarding the enterprise.

1. New Plant

   a. This section of the enterprise produces springs for railroad cars and automobiles; freight and passenger car axles and wheels; and spare parts for artillery armament, such as breechblocks for guns, barrels, (the latter are non-perforated, three meters long, and 120 mm caliber), screws, keys, and other similar equipment. The military equipment is shipped immediately upon completion. It is equipped with two five-ton cranes, 15 scrapers, 21 cutting machines, 27 drill presses, 13 lathes, and 2 small electric furnaces to harden railroad car and automobile springs. Each furnace is provided with a 380 volt electric motor. The machinery is of United States, British, Czechoslovak, and German make.

   b. This section produces various spare parts for artillery armament, such as wheels, gun platforms, caterpillar tracks, wheels and chains for tanks, and armor plate for tanks. It is equipped with two five-ton cranes, seven scrapers, six planing machines, three drill presses, three cutting machines, nine lathes, and two machines to test the hardness of the material. The machines are in part German models, and in part former UNRA supplies. Each machine is equipped with a 380 volt electric motor. The section has in addition two administrative offices.

2. New Plant

   a. This section produces wheels for trains. It is equipped with gas and electric furnaces to harden steel, an electric power plant, an electric furnace to harden steel, an electric power plant, an electric workshop, offices, three five-ton cranes, and a warehouse stocked with various cables, electric motors, et cetera. According to plans, provisions will be made to clean raw iron. The dimensions of the building which is of brick and glass are 80 meters by 50 meters by 7 meters. The electric power is 380 volts. Engineer Favaj is the department chief.

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b. This section is presently undergoing remodeling.

3. Administrative Offices and the Industrial Militia. It is a two-story brick building.

4. Empty Lot. It is 130 meters by 300 meters in dimension and a project is at present under construction by the Gradis Construction Enterprise. The steel structure has already been erected.

5. Clinic. It operates in three shifts, with nurses Dragica Matijas, and Anica Cic. A warehouse containing oil lubricants is in the extension of the clinic. On 20 October 1950, it contained 20 barrels, each with a capacity of 200 liters.

6. Smithy for Axles and Horseshoes. It is equipped with two gas furnaces, four forges, two forty horsepower electric motors to operate the electric hammers of the "Stanz-machines" for horseshoes, and an old 500 volt electric motor. The entire machinery operates on transmission belts.

7. New Smithy. This is a square building 50 meters by 50 meters by 12 meters in dimension, and made of glass and steel. It is equipped with a 15-ton crane, a five-ton crane and a three-ton crane, three small gas furnaces, three five hundred-volt electric blowers, and six odd steam hammers. Here the initial shaping of gun barrels is effected and other minor items, such as sheet iron. The work is in three shifts, each of 12 men.

8. Rolling Mill. The building is 150 meters long, 35 meters wide, and 10 meters high, and is made of steel and has glass windows. It is equipped with two large gas furnaces, two rolling machines, to shape the steel into various forms (round, triangular, flat, square), one small three-ton crane, and three electric cutters, (two for cold steel and one for hot steel). The main motor in the rolling mill is 200 horsepower and operates on 500 volts. The mill in addition contains a water pump to cool the cylinders, one Stoss-machine for heavy steel ingots, and two electric blowers, for the furnaces. The work is conducted in three shifts of 30 men each.

9. Turner and Locksmith Shops. The turning shop is equipped with six scrapers on transmission belts, two cutting machines, two drill presses, two lathes, and two 30 horsepower and 500 volt electric motors. The locksmith shop contains three scrapers, one cutting machine, two planing machines, two perforating machines, and one lathe. Power is transmitted from a 25 horsepower and 500 volt electric motor. All the machinery is old. The above two shops produce wheels for railroad cars, bearings for axles, and tank wheels which are refinished in the new plants.

10. Ball Bearing Foundry. The foundry produces steel ball bearings for use in the mills in the cement factory and in the lead mine in Mezica. It is an old building 40 meters long by 40 meters wide, equipped with a gas furnace, a blower, a cutter for hot steel, a transmission hammer operated directly by a 40 horsepower and 500 volt electric motor, and an electric motor to transmit power to the hammer and pliers of 40 horsepower and 500 volts. The electric workshop located in the building is equipped with a 500 volt electric motor, two transformers from 500 to 130 volts, one transformer from 500 to 220 volts, one switch board for the generator, one two hundred and twenty volt boring machine and one lathe. Repairs to electric furnaces, Martin furnaces, and other electrical equipment are made in the workshop, which is likewise equipped with a spare pump.

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11. Brick Factory. It is equipped with two compressors for bricks, two mixers, a warehouse containing sand and bricks for Martin furnaces. Power is supplied by a 35 horsepower and 500 volt electric motor. Repairs are likewise to Martin furnaces. The work is done in one four-man shift.

12. Laboratory. It is equipped with one small drill, one small lathe, various machines to test the hardness of the steel, and one small electric furnace for testing, and various bottled chemicals.

13. Old Carpenter Shop. It is equipped with two planing machines, two cutting machines, and one lathe. They are all electrically operated.

14. Tool Shop. It is equipped with a forge, a blower, several electric hammers, one 25 horsepower and 500 volt motor to operate the hammers. Repairs to tools for the entire enterprise are effected, and the work is done in two four-man shifts.

15. New Cleaning Shop. It is a building 50 meters long by 50 meters wide and 10 meters high, equipped with a five-ton crane, four scrapers operating on transmission (to which power is supplied by a 35 horsepower and 500 volt motor), four electric lathes, one machine to clean iron, 10 steel hardening furnaces, one three-ton Demag crane and a 500 volt electric boiler of the Elin model. Parts molded in the foundry pass through the cleaning shop for cleaning and hardening, and from there to the new plant.

16. Living Quarters for Workers.

17. Old Foundry. The foundry produces railroad cars and tank wheels, axle bearings, breechblocks for guns and gun platforms. It is equipped with gas-driven Martin furnaces with a capacity of seven tons. In them heavy steel ingots up to 200 kilograms in weight are molded. Further, equipment consists of a fifteen-ton crane, one five-ton crane, and two steel hardening furnaces. Only scrap iron is used. The foundry employs 80 workers.

17a. New Foundry. The foundry supplies military needs exclusively. It is equipped with a high frequency 20,000 volt electric furnace, three transformers from 20,000 to 500 volts (one from 380 to 500 volts, and one from 130 to 380 and up to 800 amperes.) The cylindrical furnace is three meters in diameter and 2.5 meters high. It is heated by means of electrodes supplied by Germany. A charge of five tons is poured into the molds every three hours, but only scrap steel is used. Various chemicals are added to the charge and from it large ingots known as Ocr-12 are made. Spare parts for artillery armament and tanks are likewise molded in the foundry. Additional equipment consists of a two-ton crane and a five-ton crane, two screening machines, and three form machines. The electric furnace operates continuously, and each shift has five workers.

18. New Carpenter Workshop. It is equipped with one lathe, one circular saw, two scrapers, and one cutting machine, all of which operate on 380 volts. This section makes new molds.

19. Garages. These contain two seven-ton Tatra trucks, with V-engines of 12 cylinders, which are driven by naphtha, one three-ton Praga truck which is gasoline driven, two Mercedes passenger cars, which are gasoline driven, and two twenty-ton UNRA tractors. Gasoline and oil supplies are located in the garages, but there are no reserves. One thousand two hundred liters of gasoline are delivered once a month by the Yugopetrol in Dravograd. Various types of United States fuel oils, SAE 40/60/90/ gasoline and various lubricants are used for the vehicles.

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20. Shipping Building. This is an old building 40 meters long, 8 meters wide, and 10 meters high, containing offices and warehouses for springs, wheels, horse shoes and various types of steel.

21. Old Gas Generator. This is an old building 30 meters long, 15 meters wide, and contains three storage bins for coal, three gas boilers, two furnace blowers, and one conveyer belt which connects the building with the railroad. The generator is not in operation.

22. Old Boiler Room. This section is presently inactive. It contains one electric blower, one pair of bellows, one electric water pump, one small crane, three boilers, two coal storages, one warehouse, containing three carloads of old German submarine cable, and one water tank. The 20,000 electric power station is likewise located in this building. It has two transformers, one of which is from 500 to 20,000 volts, and the other from 380 to 20,000 volts. In addition, there is a switch table which serves the entire enterprise. Electricity is conducted into the electric plant from the new plant which is equipped with a transformer. The new plant receives the current via the high tension overhead system from the thermo-electric station in Velenje, and the hydro-electric plant in Dravograd. The Gustanj electric plant is further equipped with one three-phase electric generator of 500 volts, two 220 volt drills, one 100 volt drill, installations to charge the accumulators, office of the electrical department, one electric fan, 30 different electric motors and other spare electric equipment. The chief of the electric plant is Bogomir Plecnik.

23. New Boiler Room. It is a large building 25 meters long, and 10 meters wide. The first floor contains a 380 volt gas generator made by the Litostroj in Ljubljana, two 380 volt ventilators, four new cylinderical boilers, three meters long, and 1.5 meters in diameter with walls 10 millimeters thick. The boilers are filled with coal gas. From here the gas is conducted to the various gas furnaces. Water tanks for the old and new foundry are located on this floor. They are four meters high, and the walls are six millimeters thick. In addition, there is a small coal storage and a three-ton hoisting installation which transports the coal from the railroad cars to the warehouse. The second floor contains two cylindrical boilers which are four meters long and 2.5 meters in diameter and 20 meters thick, one Litstroj generator, two water pumps of 380 volts, and one electric ventilator. Anton Mrkva is chief of the boiler room.

24. Receipt of Raw Material and Shipment of Fabricated Items. The Gustanj Enterprise is supplied by the foundries in Zenica, Jesenice, and Beocin with white crude iron molded in rectangular shapes, Lito-iron shells (sic, possibly from the Litostroj), copper bars seven meters long and 10 centimeters in diameter, and plain steel ingots. From Jesenice, Gustanj receives 17 tons of scrap iron and one carload of coke each week. From Zenica, it obtains steel ingots which weigh five tons, in amounts of three carloads per week. From Kremelj, Gustanj obtains three carloads of silex sand for molds each week. The Goloboko Mine supplies Gustanj with two carloads of fire clay per week, while Store, near Celje, supplies it with four carloads of Dinas bricks, each week. Spare parts for cranes are imported from Dusseldorf in Germany. Gustanj has a daily output of six gun barrels and four carloads of various products, such as springs, wheels for railroad cars, bearings (ball) et cetera. The cars have a capacity of from 17, 20, 22, and 15 tons. Military equipment is forwarded to Crvena Zastava in Kragujevac, and from there to Mladenovac, the Ikarus in Zemun, to the military construction enterprise in Split and to a certain factory in Travnik.

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ANALYSIS EXECUTED IN THE LABORATORY OF THE GUSTANJ ENTERPRISE

The Low Carbon Steel

C	1.20	-	1.30 %
Si	-	-	0.30 %
Mn	-	-	0.20 %
P	-	-	-
S	-	-	-
Cr	4.50	-	5.20 %

BRW - 1

Mo	-	-	0.70 %
W	12.0	-	13.00 %
V	3.0	-	3.50 %
Ni	-	-	-
Al	-	-	-
Cu	-	-	-

BRW - 2

C	0.75	-	0.85 %
Si	0.30%	-	-
Mn	0.20%	-	-
S	-	-	-
P	-	-	-
Cr	4.0	-	4.50 %

Mo	-	-	20.70 %
W	12.0	-	13.00 %
V	1.60	-	2.00 %
Ni	-	-	-
Cu	-	-	-
Al	-	-	-

BRM

C	1.05	-	1.15 %
Si	-	-	10.30 %
Mn	-	-	10.20 %
P	-	-	-
S	-	-	-
Cr	4.00	-	4.50 %

Mo	-	-	2.50 %
W	-	-	2.50 %
V	-	-	2.50 %
Ni	-	-	-
Cu	-	-	-
Al	-	-	-

BRW - 3

C	0.65	-	0.72 %
Mn	-	-	0.20 %

Mo	-	-	0.30 %
W	9.00	-	9.50 %

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Si	-	-	0.30 %
P	-	-	-
S	-	-	-
Cr	4.00	-	4.50 %
V	-	-	0.50 %
Cu	-	-	-
Ni	-	-	-
Al	-	-	-

O C - 7 0

C	0.65	-	0.75 %
SI	0.20	-	0.25 %
Mn	0.20	-	0.30 %
P	-	-	0.03 %
S	-	-	0.02 %

O C - 8 0

C	0.70	-	0.85 %
Mn	0.20	-	0.30 %
SI	0.20	-	0.25 %
P	-	-	0.030 %
S	-	-	0.025 %
Cr	-	-	0.05 %

O C - 1 0 0

C	0.95	-	1.05 %
Mn	0.20	-	0.30 %
S	-	-	-
Cr	-	-	0.050 %
P	-	-	0.030 %
Si	0.20	-	0.25 %

O C - 1 2 0

C	1.10	-	1.20 %
Si	0.20	-	0.25 %
Mn	0.20	-	0.30 %
P	0.030 %		
S	0.025 %		
Cr	0.050 %		

O C - 1 3 0

C	1.25	-	1.35 %
Si	0.20	-	0.25 %
Mn	0.20	-	0.30 %
P	0.030 %		
S	0.025 %		
Cr	0.050 %		

PROKRON - 8

C	0.35	-	0.40 %
Si	2.50	-	2.90 %

PROKRON - 1

C	0.10 %		
Si	0.50 %		

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Mn 0.25 - 0.30 %
P - - 0.025 %
S - - 0.020 %
Cr 7.50 - 8.00 %

Mn 0.50% -
P 0.025%
S 0.020%
Cr 12.00% - 13.00 %
Ni 0.30 - 0.40 %

PROKRON - 2

C 0.14 %
Si 0.50 %
Mn 0.50 %
P 0.025 %
S 0.020 %
Cr 12.00 - 13.00 %
Ni 0.30 - 0.50 %

PROKRON - special

C 01.2 - 01.7 %
Si 0.50 %
Mn 0.50 %
P 0.025 %
S 0.020 %
Cr 15.50 - 16.20 %
Ni 1.50 - 1.70 %
Cr 0.20 %

PROKRON - 11 (extra)

C 0.12 %
Si 1.00 %
Mn 0.50 %
P 0.025 %
S 0.0020 % (?)
Cr 17.50 - 18.50 %
Mo 0.30 %
V 1.00 %
Ni 8.00 - 9.00 %

PROKRON - 11

C 0.12 %
Si 1.00 %
Mn 0.50 %
P 0.025 %
S 0.020 %
Cr 17.50 - 18.50 %
Mo 0.30 %
Ni 8.00 - 9.00 %

PROKRON - 12

C 0.12 %
Si 1.00 %
Mn 0.50 %

PROKRON - 12 (extra)

C 0.12 %
Si 1.00 %
Mn 0.50 %

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P 0.025 %
S 0.020 %
Cr 17.50 - 18.50 %
Mo 1.50 - 1.70 %
Ni 8.30 - 9.20 %

P 0.025 %
S 0.020 %
Cr 17.50 - 18.50 %
Mo 1.50 - 1.70 %
V 0.50 - 1.00 %
Ni 8.30 - 9.20 %

PROKRON - 19

C 0.15 - 0.25 %
SI 0.50 %
Mn 0.50 %
P 0.025 %
S 0.020 %
Cr 24.00 - 26.00 %
Ni 20.00 - 21.00 %

PROKRON - 20

C 0.20 - 0.30 %
SI 0.50 % -
Mn 0.50 %
P 0.025 %
S 0.020 %
Cr 20.00 - 25.00 %
Ni 36.00 - 40.00 %

PROKRON - 10 (extra)

C 0.10 - 0.25 %
Si 1.00 %
Mn 0.50 %
P 0.030 %
S 0.020 %
Cr 24.00 - 26.00 %
Ni 1.00 - 1.50 %

MERILO

C 0.85 - 0.95 %
Si 0.30 %
Mn 1.80 - 2.00 %
P 0.025 %

MERILO - special steel

C 1.35 - 1.45 %
Si 0.25 %
P 0.025 %
Mn 0.50 %

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S 0.020 %
V 0.20 - 0.25 %
Cr 0.030 %

S 0.020 %
V 0.15 - 0.20 %
Cr 1.50 - 1.70 %

UTOP - 1

C 0.28 - 0.32 %
Si 1.00 %
Mn 0.20 - 0.30 %
P 0.020 %
S 0.020 %
Cr 1.00 - 1.20 %
W 4.00 - 4.50 %
Mo 0.20 - 0.30 %

UTOP - special

C 0.24 - 0.28 %
Si 0.50 %
Mn 0.50 %
P 0.020 %
S 0.020 %
Cr 2.00 - 2.50 %
W 9.00 - 10.00 %
V 0.20 - 0.25 %
Ni 1.65 %

UTOP - 2

C 0.24 - 0.28 %
Si 0.30 - 0.40 %
Mn 0.20 - 0.30 %
P 0.020 %
S 0.020 %
Cr 2.00 - 2.50 %
W 9.00 - 10.00 %
V 0.20 - 0.25 %

UTOP - extra

C 0.32 - 0.38 %
Si 0.30 %
Mn 0.70 %
P 0.025 %
S 0.020 %
Cr 1.50 %
Mo 0.60 %
V 0.30 %
Ni 2.00 %

OCR - 12

C 1.80 - 2.00 %
Si 0.30 %
Mn 0.30 %

OCR - 12 special steel

C 1.18 - 2.00 %
Si 0.30 %
Mn 0.30 %

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P 0.025 %
S 0.020 %
Cr 11.50 - 12.50 %
V 0.12 %

P 0.025 %
S 0.020 %
Cr 11.50 - 12.50 %
W 0.75 %
V 0.25 % (calculated)

PROKRON - 4

C 0.30 - 0.35 %
Si 0.35 %
Mn 0.50 %
P 0.025 %
S 0.020 %
Cr 12.50 - 13.50 %
Ni 0.30 - 0.50 %

PROKRON - 3

C 0.20 - 0.25 %
Si 0.40 %
Mn 0.50 %
P 0.025 %
S 0.020 %
Cr 12.50 - 13.50 %
Ni 0.30 - 0.50 %

CE special ("Poldi")

C 0.10 - 0.15 %
Si 0.30 %
Mn 0.40 - 0.50 %
P 0.025 %
S 0.020 %
Cr 0.75 - 0.85 %

ALMIT

C 0.42 - 0.48 %
Si 0.25 - 0.30 %
Mn 0.60 - 0.70 %
P 0.025 %
S 0.020 %
Cr 1.25 - 1.35 %

OW - 1 (alloyed steel for tools)

C 1.15 - 1.25 %
Si 0.25 %
Mn 0.30 %
P 0.025 %
S 0.020 %
Cr 0.030 %
W 1.05 %

OW - 3

C 1.05 - 1.15 %
Si 0.20 - 0.30 %
Mn 0.25 - 0.30 %
P 0.025 %
S 0.020 %
Cr 0.50 % - 0.70 %
W 1.40 - 1.60 %
V 0.25 %

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CENTRAL INTELLIGENCE AGENCY

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OW - 2

C	1.15 - 1.25 %
Si	0.25 %
Mn	0.30 %
P	0.025 %
S	0.020 %
Cr	0.30 - 0.40 %
W	1.30 - 1.50 %

ONI - 1

C	0.70 - 0.80 %
Si	0.20 - 0.30 %
Mn	0.20 - 0.30 %
P	0.025 %
S	0.020 %
Cr	0.050 %
Ni	0.60 - 0.70 %

OCR - 1

C	1.00 - 1.15 %
Si	0.20 %
Mn	0.20 - 0.30 %
P	0.025 %
S	0.020 %
Cr	0.90 - 1.10 %
V	0.15 %

OCR - 2

C	1.15 - 1.25 %
Si	0.20 - 0.30 %
Mn	0.20 - 0.30 %
P	0.025 %
S	0.020 %
Cr	0.95 - 1.05 %

OCR - 3

C	1.45 - 1.55 %
Si	0.20 - 0.30 %
Mn	0.20 - 0.30 %
P	0.025 %
S	0.020 %
Cr	0.95 - 1.05 %

OCR -

C	0.80 - 0.90 %
Si	0.30 %
Mn	0.25 - 0.35 %
P	0.025 %
S	0.020 %
Cr	0.85 - 0.95 %

OSI - KRO - 2

C	0.38 - 0.44 %
Si	1.00 %
Mn	0.20 - 0.30 %

OSI - KRO - 3

C	0.48 - 0.55 %
Si	1.00 - 0.30 %
Mn	0.20 - 0.30 %

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P 0.025 %
S 0.020 %
Cr 0.95 - 1.05 %
W 2.00 - 2.50 %

P 0.025 %
S 0.020 %
Cr 0.95 - 1.05 %
W 2.10 - 2.30 %

OCR - 4

C 0.95 - 1.05 %
Si 0.20 - 0.30 %
Mn 0.30 - 0.35 %
P 0.020 %
S 0.020 %
Cr 1.30 - 1.50 %

OL - 1

C 0.52 - 0.58 %
Si 0.35 %
Mn 0.60 - 0.80 %
P 0.030 %
S 0.020 %
Cr 0.30 - 0.50 %

OL - 2

C 0.75 - 0.85 %
Si 0.35 %
Mn 0.70 - 0.90 %
P 0.030 %
S 0.020 %
Cr 0.40 - 0.50 %

OC - 100 - extra

C 0.95 - 1.05 %
Si 0.20 - 0.25 %
Mn 0.20 - 0.30 %
P-L 0.025 %
S-L 0.020 %
Cr-L 0.25 %
V-L 0.05 % (calculated)

OC - 120 extra

C 1.10 - 1.20 %
Si 0.20 - 0.25 %
Mn 0.20 - 0.30 %
P 0.025 %
S 0.020 %
Cr 0.05 %
V 0.05 %

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KES

C 0.60 - 0.72 %
Si 0.15 %
Mn 0.25 %
P 0.020 %
S 0.015 %

OCK

C 0.65 - 0.75 %
Si 0.10 %
Mn 0.15 %
P 0.020 %
S 0.015 %

OCU

C 0.52 - 0.58 %
Si 0.35 %
Mn 0.60 - 0.80 %
P 0.025 %
S 0.020 %

OC - 45 - S

C 0.45 - 0.85 %
Si 0.30 %
Mn 0.60 - 0.80 %
P 0.025 %
S 0.020 %

OCP - 45

C 0.42 - 0.48 %
Si 0.35 %
Mn 0.50 - 0.80 %
P 0.025 %
S 0.020 %

OCP - 65

C 0.60 - 0.70 %
Si 0.20 %
Mn 0.20 - 0.30 %
P 0.020 %
S 0.020 %

OCP - 110

C 1.05 - 1.15 %
Si 0.20 %
Mn 0.25 %
P 0.025 %
S 0.020 %

OCP - 125

C 1.20 - 1.30 %
Si 0.20 %
Mn 0.25%
P 0.025 %
S 0.020 %

OC - 80 extra special

C 0.95 - 1.05 %
Si 0.20 %

OC - 100 extra special

C 0.95 - 1.05 %
Si 0.20 %

C the steel for tools

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[redacted]

Mn 0.25 %
P 0.025 %
S 0.020 %

Mn 0.25 %
P 0.025 %
S 0.020 %
V 0.20 %

OC - 120 extra special

C 1.10 - 1.20 %
Si 0.20 - 0.25 %
Mn 0.20 - 0.30 %
P 0.025 %
S 0.020 %
Cr 0.03 %
V 0.20 %

OCP - 135

C 1.35 - 1.45 %
Si 0.20 %
Mn 0.25 %
P 0.025 %
S 0.020 %

THE QUALITY OF THE DOMESTIC PRODUCTION OF THE GUSTANJ ENTERPRISE

PROKRON - 10 - L

C 0.50 - 0.70 %
Si 2.00 - 2.50 %
Mn 0.50 %
P 0.020 %
S 0.020 %
Cr 19.00 - 21.00 %

UTOP - Mo

C 0.24 - 0.29 %
Si 0.30 - 0.50 %
Mn 0.30 - 0.50 %
P 0.020 %
S 0.020 %
Cr 1.70 - 2.00 %
Mo 2.50 - 3.00 %
W 0.80 - 1.00 %
Ni 2.30 - 2.50 %

[redacted] - 5

C 1.40 - 1.50 %
Si 0.30 %

OCR - 4

C 0.95 - 0.50 %
Si 0.30 %

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Mn 0.35 %
P 0.025 %
S 0.020 %
W 4.50 - 5.50 %
Cr 0.40 - 0.50 %

Mn 0.30 - 0.35 %
P 0.20 %
S 0.020 %
Cr 1.30 - 1.50 %

OSi - Mo

C 0.48 - 0.53 %
Si 1.00 %
Mn 0.45 - 0.55 %
P 0.025 %
S 0.020 %
Mo 0.45 - 0.55 %

Cr Mn Si

C 0.28 - 0.35 %
Si 0.90 - 1.20 %
Mn 0.80 - 1.10 %
P 0.025 %
S 0.020 %
Cr 0.80 - 1.10 %

E C Mo - 80

C 0.13 - 0.18 %
Si 0.25 - 0.35 %
Mn 0.80 - 1.10 %
P 0.025 %
S 0.020 %
Cr 1.00 - 1.30 %

W C Mo - 140

C 0.38 - 0.45 %
Si 0.35 %
Mn 0.50 - 0.80 %
P 0.025 %
S 0.020 %
Cr 0.90 - 1.20 %
Mo 0.15 - 0.25 %

PROKRON 5 M

C 0.45 - 0.50 %
Si 0.40 %
Mn 0.50 %
P 0.025 %
S 0.020 %
Cr 14.50 - 15.50 %

PROKRON - 3

C 0.20 - 0.25 %
Si 0.40 %
Mn 0.50 %
P 0.025 %
S 0.020 %
Cr 14.50 - 15.50 %

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[redacted] 25X1A

Mo 1.80 - 2.20 %
Ni 0.35 %

Ni 0.35 %

V C Mo - 135

C 0.30 - 0.37 %
Si 0.40 %
Mn 0.50 - 0.80 %
P 0.020 %
S 0.020 %
Cr 0.90 - 1.20 %
Mo 0.15 - 0.25 %

F L G W - 1610

C 0.47 - 0.55
Si 0.40 %
Mn 0.70 - 0.90 %
P 0.025 %
S 0.025 %
Cr 0.90 - 1.20 %
V 0.10 - 0.18 %

F L G W - 1470

C 0.24 - 0.34 %
Si 0.35 %
Mn 0.40 - 0.80 %
P 0.025 %
S 0.020 %
Cr 2.30 - 2.70 %
Mo 0.15 - 0.25 %
V 0.10 - 0.35 %

F L G W - 1452

C 0.22 - 0.25 %
Si 0.35 %
Mn 0.50 - 0.70 %
P 0.020 %
S 0.015 %
Cr 0.90 - 1.20 %
Mo 0.15 - 0.25 %

F L G W - 1456

C 0.24 - 0.34 %
Si 0.35 %
Mn 0.40 - 0.80 %
P 0.025 %
S 0.020 %
Cr 2.30 - 2.70 %
Mo 0.15 - 0.25 %
V 0.10 - 0.35 %

Cr Mo L Go

C 0.15 - 0.25 %
Si 0.50 %
Mn 0.70 %
P 0.030 %
S 0.030 %
Cr 0.70 - 1.20 %
Mo 0.20 - 0.40 %

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[redacted] 25X1A

E C N - 45

C	0.10	-	0.17 %
Si	0.35 %		
Mn	0.50 %		
P	0.020 %		
S	0.020 %		
Cr	0.90	-	1.30 %
Ni	4.25	-	4.75 %

V C N - 15 W

C	0.25	-	0.70 %
Si	0.35 %		
Mn	0.40	-	0.70 %
P	0.025 %		
S	0.020 %		
Cr	0.30 %	-	0.70 %
Ni	1.25	-	1.75 %

V C N - 15 H

C	0.35	-	0.45 %
Si	0.35 %		
P	0.030 %		
S	0.020 %		
Mn	0.40	-	0.70 %
Cr	0.30	-	0.70 %
Ni	1.25	-	1.75 %

E C N - 45

C	0.10	-	0.17 %
Si	0.35 %		
Mn	0.50 %		
P	0.030 %		
S	0.020 %		
Cr	0.55	-	0.75 %
Ni	3.25	-	3.75 %

F L G W - 1812

C	0.18	-	0.25 %
Si	0.30	-	0.50 %
Mn	1.00	-	1.30 %
P	0.030 %		
S	0.020 %		
Cr	1.40	-	1.80 %
Mo	0.25	-	0.35 %

OKRO Mo - OCR Mo

C	0.62	-	0.70 %
Si	0.28	-	0.35 %
Mn	0.90	-	4.01 %
Cr	0.85	-	1.00 %
Mo	1.00	-	1.20 %

PROKRON - 19

C	0.15	-	0.18 %
Si	0.50 %		
Mn	0.50 %		

PROKRON - 19

P	0.025 %		
S	0.020 %		
Cr	24.00	-	26.00 %
Ni	20.00	-	21.00 %

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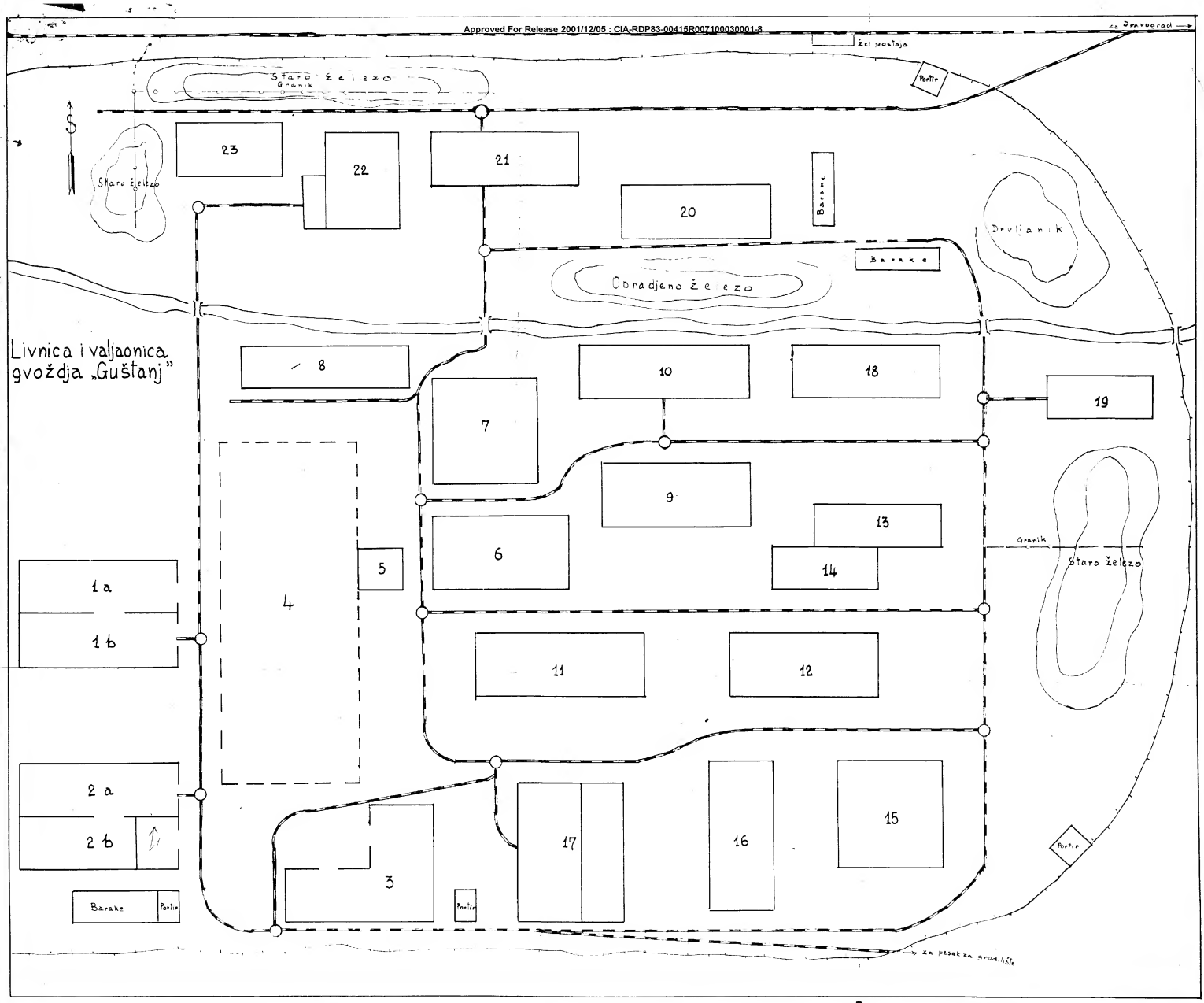

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Gustavsj Iron Foundry and Rolling Mill

25X1A

[redacted]

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